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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,043	03/30/2004	Karl W. Beeson	KB3	5719

7590 01/11/2005  
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EXAMINER

GUHARAY, KARABI

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/814,043

Applicant(s)

BEESON ET AL.

Examiner

Karabi Guharay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 12-14, 20-29, 32, 34 and 35 is/are rejected.
- 7) ☒ Claim(s) 9-11, 15-19, 30, 31, 33 and 36-38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/30/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/30/2004</u> . | 6) <input type="checkbox"/> Other: ____.  |

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

- (1) 508a, 508b, 508c, 508d and 512a, and 512b included in Fig 11b and Fig 11C,
- (2) 708a, 708c, 708e, 708g, 708i, 708k included in Fig 12B.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claims 2-38 are objected to because of the following informalities:

Claims 2-38 depend from claim 1. Since claims 2-38 further limits the illumination system of claim 1, for having proper antecedent basis, it is suggested that in each of claims 2-38, "An illumination system" should be changed to "The illumination system". Appropriate corrections are required.

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Claims 10, 11, 37 are further objected for following informalities:

In claim 10, "second light flux of a second wavelength" should be changed to "said light flux of said second wavelength" since second wavelength is mentioned in claim 9 from which claim 10 is dependent.

In claim 11, in line 7, "a second wavelength range" should be changed to "said second wavelength range" since "a second wavelength range" is mentioned previously in line 5.

In claim 37, "a first polarization state" should be changed to "said first polarization state" since "a first polarization state" mentioned in claim 36 from which claim 37 is dependent.

Claim 35 is objected to for being a improper Markush group. One acceptable form of alternative expression, which is commonly referred to as a Markush group, recites members as being "selected from the group consisting of A, B and C." See *Ex parte Markush*, 1925 C.D. 126 (Comm'r Pat. 1925). It is improper to use the term "comprising" instead of "consisting of." *Ex parte Dotter*, 12 USPQ 382 (Bd. App. 1931), see MPEP 2173.05(h).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly

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owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8, 12-14, 20-29, 32 & 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmerman et al. (US 6144536), and further in view of Zou et al. (US 6186649).

Regarding claim 1, Zimmerman discloses an illumination source (Fig 3) comprising a light source (320) wherein the light source comprises at least one LED (organic light emitting diodes, lines 61-65 of column 4) which inherently comprised of a light emitting layer (organic layer) and a reflective layer (metal electrode layer) that reflects light emitted by the light emitting layer having a reflectivity  $R_s$  wherein the total light emitting area of the source has a specific area  $A_s$  and has maximum intrinsic radiance (lines 11-8-13 of column 6), a light recycling envelope (340) partially encloses the light source wherein the light recycling envelope has reflectivity (lines 61-62 of column 11) and wherein the light recycling envelope reflects and recycles part of the light back to the light source including reflecting layer of OLED source (lines 2-6 of column 2), and at least one light output aperture (opening in the reflector 340) is located in a surface of the light recycling envelope having an area  $A_o$ , wherein said light source and said light-recycling envelope direct at least a fraction of said light out of said light-recycling envelope through said at least one light output aperture and wherein said fraction of said light exits said at least one light output aperture as incoherent light

(since general LEDs and OLEDs emit incoherent light) having a maximum exiting radiance (see Abstract).

However, Zimmerman is silent about the area  $A_o$  being less than  $A_s$ .

However, Zou et al. suggests that it is preferred that area  $A_o$  is less than the  $A_s$  (lines 31-33 of column 5) and further teaches that such configuration (lines 42-51 of column 4) achieve improved output radiance (see Abstract).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have area  $A_o$  is less than the  $A_s$ , in the device of Zimmerman since this will improve the output radiance as taught by Zou et al.

Regarding claim 2, Zimmerman discloses that the maximum exiting radiance is greater than maximum intrinsic source radiance (see Abstract).

Regarding claim 3, Zimmerman discloses that the light emitting diode is chosen from the group consisting of inorganic Led and an organic Led (lines 64-65 of column 4).

Regarding claim 4, Zou et al. disclose that the light source is located on an inside surface of the light envelope (lines 4244 of column 4). The same reason for combining art as in claim 1 applies.

Regarding claims 5-7, Zimmerman discloses LEDs, which can emit wavelengths ranging from ultraviolet to infrared wavelengths, thus encompasses wavelengths from 200nm to less than 3000nm.

Regarding claim 8, Zou et al. disclose that the light source is a plurality of LEDs (lines 62-64 of column 4).

Regarding claims 12-14 Zimmerman discloses that the reflectivity of the light source is at least 90% (lines 37-41 of column 13).

Regarding claims 20-23, Zou et al. disclose that the reflecting coating (layer 106 of Fig 3) is a diffuse reflector, a specular reflector or a combination of diffuse and specular reflectors (lines 47-50 of column 5).

Regarding claims 24-26, Zou et al. disclose that the Rs is at least 90% (lines 51-52 of column 5). The same reason for combining art as in claim 1 applies.

Regarding claims 27-29, Zou et al. disclose that the area Ao (width of linear opening) is between 10% to 100% of the width of the light source (lines 31-33 of column 5).

Regarding claim 32, Zou et al. disclose a plurality of light output apertures (see Abstract).

Regarding claims 34-35, Zou et al. further discloses at least one light-collimating element wherein said at least one light-collimating element has an input surface adjacent to said at least one light output aperture which accepts un-collimated light, wherein said at least one light-collimating element partially collimates said un-collimated light and wherein said at least one light-collimating element has an output surface through which the partially collimated light is transmitted (416, 466 of Fig 12 & Fig 13, lines 18-25 of column 9, and lines 57 of column 10-line 3 of column 11), and at least one light-collimating element is chosen from the group comprising a convex lens, a tapered light guide and a compound parabolic reflector (lines 10-16 of column 10).

***Allowable Subject Matter***

Claims 9-11, 15-19, 30-31, 33, 36-38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for indicating allowable subject matter:

Regarding claims 9-11, 15-19, 30-31, 33 and 36-38 prior art of record neither shows nor suggests an illumination device comprising the limitations set forth in above claims.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Karabi Guharay*  
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